Amendment of Claims 1, 16, 30, 39, 50 and 56

Applicant has amended without prejudice claims 1, 16, 30, 39, 50 and 56 as indicated above to better encompass the full scope and breadth of the invention, notwithstanding Applicant's belief that the claims would have also been allowable in their original form.

Rejection of Claim 1 under 35 U.S.C. § 102(b)

Claim 1 was rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 5,565,886 ("Gibson"). Applicant respectfully traverses the rejection.

As amended, claim 1 recites, inter alia, "wherein various bits in a respective portion of the bit map corresponding to a pixel correspond to different locations on the character in the representation of the character in the bit map." (emphasis added). Gibson does not teach that various bits in a respective portion of a bitmap corresponding to a pixel correspond to different locations on the character in a representation of the character in the bitmap. Rather, Gibson has examples of representations of images in which various bits corresponding to a pixel represent a color value of a pixel at the single location of the pixel in the image. *See*, for example, Fig. 2B of Gibson, which the Examiner cites in the January 4, 2001 Interview Summary. Gibson states, "These bitmaps are known as multiple bit per pixel bitmaps, and use more that [sic] one bit to store the level of the illuminative intensity of each pixel." Gibson, col. 2, lines 48-50.

The bits associated with a pixel in Gibson are part of a binary number representing a color value and do not correspond to different locations on the character. There is no motivation or reason in Gibson to divide Gibson's binary bit strings to arrive at the invention of claim 1 because Gibson is directed to displaying the pixels of images for which the color

value has already been determined. Therefore, dividing the binary strings to represent different locations on the character would defeat the purpose of representing the color value of the single corresponding pixel. Since Gibson relies on the binary strings to represent the desired color value, it is not clear how the desired color value could be obtained in Gibson's system if various bits in the binary strings instead corresponded to different locations on a character. Thus, not only does Gibson fail to disclose the invention of claim 1, but one would not be motivated to modify Gibson to arrive at the invention of claim 1.

Further, Gibson does not teach, based on a percentage of bits that are on in respective portions of the bit map, determining luminances for corresponding pixels as claimed in claim 1 as amended. In one aspect of the present invention, among other advantages, this permits relatively fast calculation of the luminances, while employing less CPU power and utilizing less storage space. *See* Applicant's specification, p. 6, lines 17-20. In contrast, the binary number system employed in Gibson relies on conventional numerical principles to encode the illuminative intensity or color of an already antialiased pixel with a predetermined luminance. *See, e.g.*, Gibson, Figure 2B (showing the illuminative intensity values in base 10 for the already antialiased representation of letter "A" from Figure 2A). Since Gibson operates on pre-processed characters, where luminance or color values have been pre-computed for each pixel, Gibson does not attempt to determine attributes of the pixels but is instead directed to rapidly transmitting multicolor or grayscale data having multiple bits per pixel to a display device. *See* col. 1, lines 9-13. Thus, since the color values have been pre-determined, Gibson provides no teaching or motivation of determining luminance. Additionally, Gibson provides no teaching of determining luminance of a pixel based on the percentage of bits that are on in

respective portions of the bitmap. Rather, Gibson teaches use of predetermined color values encoded in binary numbers intended to be used as binary numbers rather than as a source from which a percentage of bits that are on would be observed.

Further, any modification to include the portions of claim 1 discussed above would destroy Gibson's character and cause it not to function according to its intended purpose. As illustrated by a passage cited in the Office Action, for example, Gibson relies on the pre-encoded binary color values associated with each pixel to generate single bit per pixel raster planes which Gibson then transmits to the display device. *See* col. 3, lines 53-66. If Gibson were modified such that the luminance of Gibson's pixels is determined based on a percentage of bits that are on in respective portions of the bit map, unreliable results would be obtained.

The bits in Gibson that encode a color value corresponding to a pixel are intended to be read as a binary number in order to display the color value that the bits encode. If instead of reading the binary numbers as binary numbers, luminance is determined based on the percentage of bits that are on in such binary numbers, many of the color values intended to be displayed would not be displayed. This result would occur because binary numbers are intended to be read by observing the values of the bits in the respective positions in the binary word, not merely through an observation of the percentage of bits that are on in the binary words. For example, high order bits in a binary word have different values than low order bits. Thus, determining luminances based on the percentage of bits that are on in binary numbers that encode color values would cause Gibson to fail to achieve its intended function. Therefore, one would not be motivated to modify Gibson to include the steps claimed in

claim 1 because such a modification would cause Gibson to fail to achieve its intended function of displaying the pre-encoded color values for the respective pixels.

For the reasons discussed above, Gibson fails to teach all of the elements of claim 1 and further does not teach or suggest the invention of claim 1. Applicant therefore respectfully requests removal of the rejection of claim 1.

Rejection of Claims 2-65 under 35 U.S.C. § 103(a)

Claims 2-65 were rejected under 35 U.S.C. § 103(a). The Office Action refers to U.S. Patent Number 5,565,886 ("Gibson") and U.S. Patent Number 5,555,360 ("Kumazaki"). Applicant respectfully traverses the rejection of claims 2-65.

Applicant provided a response to this rejection in Applicant's response to the previous office action dated March 15, 2001. Applicant believes that the arguments in that response remain valid and are consistent with the claim amendments introduced above. Consequently, Applicant believes that claims 2-65 are patentable over the cited references.

Further, as discussed above, Gibson fails to disclose "wherein various bits in a respective portion of the bit map corresponding to a pixel correspond to different locations on the character in the representation of the character in the bit map," and "based on a percentage of bits that are on in respective portions of the bit map, determining luminances for corresponding pixels" as recited in claim 1. The additional material from Kumazaki and Hoddie cited in the Office Action fails to remedy this deficiency of Gibson. Consequently, even in combination, Gibson, Kumazaki and Hoddie fail to disclose, teach or suggest the invention claimed in claims 2-15 which depend from claim 1. Therefore, for this reason and for the other reasons discussed above, claims 2-15 are patentable, and Applicant respectfully

requests their allowance.

Independent claim 16 recites, *inter alia*, "wherein various bits in a respective portion of the bit map corresponding to a pixel correspond to different locations on the character in the bit map" and "logic that, based on a percentage of bits that are on in respective portions of the bit map, determines luminances for corresponding pixels." Gibson and Kumazaki fail to disclose, teach or suggest these elements. Therefore, independent claim 16 and claims 17-29 which depend from it are patentable over the cited references, and Applicant respectfully requests their allowance.

Independent claim 30 recites, *inter alia*, "wherein various portions of the bit map corresponding to a pixel correspond to different locations on the shape in the rendering of the shape in the bit map" and "based on a percentage of bits that are on in respective portions of the bit map, determining luminances for the corresponding pixels . . . ." Even in combination, Gibson and Kumazaki fail to disclose, teach or suggest these elements. Consequently, independent claim 30 and claims 31-38 which depend from it are patentable over the cited references, and Applicant respectfully requests their allowance.

Independent claim 39 recites, *inter alia*, "wherein various bits in a respective portion of the bit map corresponding to a pixel correspond to different locations on the character in the bit map" and "logic that, based on a percentage of bits that are on in respective portions of the bit map, determines luminances for corresponding pixels." Gibson and Kumazaki fail to disclose, teach or suggest these elements. Therefore, independent claim 39 and claims 40-49 which depend from it are patentable over the cited references, and Applicant respectfully requests their allowance.

Independent claim 50 recites, *inter alia*, "wherein various bits in a respective portion of the bit map corresponding to a pixel correspond to different locations on the character in the bit map" and "computer readable program code means for, based on a percentage of bits that are on in respective portions of the bit map, determining luminances for corresponding pixels." Even in combination, Gibson and Kumazaki fail to disclose, teach or suggest these elements. Consequently, independent claim 50 and claims 51-55 which depend from it are patentable over the cited references, and Applicant respectfully requests their allowance.

Independent claim 56 recites, *inter alia*, "wherein various bits in a respective portion of the bit map corresponding to a pixel correspond to different locations on the character in the bit map" and "logic that, based on a percentage of bits that are on in respective portions of the bit map, determines an attribute for corresponding pixels." Gibson and Kumazaki fail to disclose, teach or suggest these elements. Therefore, independent claim 56 and claims 57-65 which depend from it are patentable over the cited references, and Applicant respectfully requests their allowance.

Amendments

Attached hereto is a marked-up version of the changes made to the claims by the current amendment. The attached page is captioned "**VERSION WITH MARKINGS TO SHOW CHANGES MADE.**"

CONCLUSION

In view of the above remarks, Applicant believes that the present application is in condition for allowance and such action is respectfully requested.

Respectfully submitted,

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

In the Claims

Please amend without prejudice claims 1, 16, 30, 39, 50 and 56 as indicated below:

1. (Amended) A method of displaying a character, the method comprising:

determining a representation of a character in a bit map having a number of bits greater than a number of pixels in a region of a display in which the character is to be displayed wherein various bits in a respective portion of the bit map corresponding to a pixel correspond to different locations on the character in the representation of the character in the bit map;

based on a percentage [relative number] of bits that are on in respective portions of the bit map, determining luminances for corresponding pixels; and

displaying the character in the region having the particular number of pixels, the pixels being displayed with the determined luminances.

16. (Amended) A system for displaying a character, the character to be displayed within a region of a display having a particular number of pixels, the system comprising:

logic that renders a bit map corresponding to a vector representation of the character;

logic that causes the logic that renders to render a bit map having a number of bits, the number of bits greater than the particular number of pixels, wherein various bits in a

respective portion of the bit map corresponding to a pixel correspond to different locations on the character in the bit map;

logic that, based on a percentage [relative number] of bits that are on in respective portions of the bit map, determines luminances for corresponding pixels; and

logic that causes the character to be displayed in the region having the particular number of pixels, the pixels having the determined luminances.

30. (Amended) A method for displaying a shape, the shape to be displayed a particular size on a display, the method comprising:

requesting a bit map rendering of the shape in which the shape has a size larger than the particular size, wherein various portions of the bit map corresponding to a pixel correspond to different locations on the shape in the rendering of the shape in the bit map;

based on a percentage [relative number] of bits that are on in respective portions of the bit map, determining luminances for the corresponding pixels of a rendering of the shape on the display having the particular size; and

displaying the shape on the display in the particular size with the pixels the determined luminances.

39. (Amended) A television system comprising:

electronics for displaying images on a display in response to a television signal; and

logic for displaying a character, the character to be displayed within a region of the display having a particular number of pixels, the logic comprising:

logic that renders a bit map corresponding to a vector representation of the character;

logic that causes the logic that renders to render a bit map having a number of bits, the number of bits greater than the particular number of pixels, wherein various bits in a respective portion of the bit map corresponding to a pixel correspond to different locations on the character in the bit map;

logic that, based on a percentage [relative number] of bits that are on in respective portions of the bit map, determines luminances for corresponding pixels; and

logic that causes the character to be displayed in the region having the particular number of pixels, the pixels being displayed on the display in response to the determined luminances.

50. (Amended) A computer program product for displaying a character, the character to be displayed within a region of a display having a particular number of pixels, the computer program product comprising:

a computer usable medium having computer readable program code means embodied in the medium, the computer readable program code means having:

computer readable program code means for rendering a bit map corresponding to a vector representation of the character;

computer readable program code means for causing the logic that renders to render a bit map having a number of bits, the number of bits greater than the particular number of pixels, wherein various bits in a respective portion of the bit map corresponding to

a pixel correspond to different locations on the character in the bit map;

computer readable program code means for, based on a percentage [relative number] of bits that are on in respective portions of the bit map, determining luminances for corresponding pixels; and

computer readable program code means for causing the character to be displayed in the region having the particular number of pixels, the pixels having the determined luminances.

56. (Amended) A system for displaying a character, the character to be displayed within a region of a display having a particular number of pixels, the system comprising:

logic that renders a bit map corresponding to a vector representation of the character;

logic that causes the logic that renders to render a bit map having a number of bits, the number of bits greater than the particular number of pixels, wherein various bits in a respective portion of the bit map corresponding to a pixel correspond to different locations on the character in the bit map;

logic that, based on a percentage [relative number] of bits that are on in respective portions of the bit map, determines an attribute for corresponding pixels; and

logic that causes the character to be displayed in the region having the particular number of pixels, the pixels being displayed on the display having the determined attributes.